

DNA Day Essay Contest

The Human Genome Project – A Medical Revolution

The Human Genome Project, a venture that had a vision far ahead of its time and when accomplished had the potential to change the paradigm of medicine. A proposed 15 year mega project involving more than 4 million employees, 800 billion dollars, 1100 top scientific minds in the planet and state of the art technology worked tirelessly to complete it three years before the stipulated time period. The main objective of this project was to sequence the entire human genome and make it available to researchers for enhancing human life. As simple as it may appear to read, mapping 20,000 to 25,000 genes with variations in different individuals including Single Nucleotide Polymorphisms was a tremendous task to perform.

The benefits this project can bring to mankind are ginormous, it can revolutionize the whole concept of present day medicine shifting it from symptomatic treatment to curative treatment targeting the source of a disease. In just under a decade the knowledge gained from HGP has helped in finding the root cause of several diseases. Gene therapy is inarguably the new word that will redefine the word treatment in the forthcoming future. Germline therapy and Somatic Gene therapy can potentially cure some of the most feared diseases of the present not only for the treated person but for the whole generation by tackling them at the cause. This might be considered unrealistic by few but researchers have proved them wrong by inventing new methods for gene transfer such as Artificial Lipid Sphere with aqueous core. Treatment is not the only scope for genetics in medicine, implementation of such brilliant genetic data to clinical medicine can reduce the ‘guess factor’ that prevails today. Such methods are not a talk of the future but of the present. There are more than one to name here which includes Prenatal Diagnostic Testing, Preimplantation genetic diagnosis, etc. With advancements in technology people will get an opportunity to carry their own genetic profile thereby having the ability to foresee their health condition in a scientific way and take necessary steps for its prevention. Present genetic advancements such as the use of DNA testing has already improvised forensic medicine and in the future the involvement of genetic methods to solve complex crimes and similar national problems will be much higher.

Any invention made by human has its own positive and negative but its outcome rest upon the hands with whom the invention lies. The HGP is not an exception for this universal truth, there are several Ethical, Legal and Social Implications with it. One of the top concerns for the HGP is ‘Eugenics’ that is making smarter humans through genetic modifications. The other major drawback for the HGP is the fear of demeaning people based on their genetic profile. Demeaning of people can range from socially marginalizing from work, society to depriving them to entitle health care benefits. The present day situations such as insurance refusal for people who are found to positive after genetic testing for Huntington’s Disease, Government incentives for smarter women in Japan increases the doubt that genetic advancements gained through HGP can become a bad omen to the society. There are also conceptions that in future genetic profile may determine eligibility to treatment and other health related services and such situations when becomes real can heavily demoralize human values. There is a huge possibility that the term “Genetification” being integrated to medicine which can entirely change the present days view of

doctor patient relationship to a whole new chapter and it can also have its own impact on several cultures. There is also increasing fear whether the knowledge gained through HGP and similar projects will be patented and given to the hands of private which can literally lead to human commodification. There are several regulations established by the WHO and governments but still they are on their development phase and needs a major revamp in order to give the people the security they expect.

Human brain is ever curious starting from the period of Adam & Eve. Our hunger to gain knowledge has reached far beyond the horizon and with the technology available today it is practically impossible to resist us from exploring. Through strict regulations, mutual respect to international culture and proper cooperation between world nations such genetic advancements including the HGP can definitely help in the betterment of mankind!